Nematodirus Infections in Cattle

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A Parasite Profile

Nematodirus is found worldwide but most often in the temperate regions. It is a parasite of ruminants, including cattle, sheep, goats and other species. In cattle, the most common species is *N. helvetianus*, which has been called "the thin-necked intestinal worm" or "the thread-necked strongyle". The adult stages are found in the small intestine. Other species include *N. spathiger, N. battus*, and *N. filicollis*; however, these are not considered to be of major importance in cattle.(1)

The life cycle is similar to other nematodes of cattle, with one major exception. The larval stages will develop in the egg, which will not hatch until after the infective third stage larva has developed. The first two molts to the L3 larval stage take 2 to 4 weeks under ideal conditions. If conditions are not favorable, molting may be delayed within the egg. Because the egg does not hatch before the formation of an L3 larva, it can persist on the pasture for extended periods of time. It has been determined that both the egg and the L3 larva may survive on pastures for up to 2 years.(1) These two stages have also been shown to survive direct freezing and can easily overwinter.(1-3) The L3’s, however, are susceptible to dry conditions, and if relative humidity drops to between 65 to 80%, the larva will die over an 8 to 12 week period.(2) Ideal environmental conditions for survival are usually found in the early spring or late fall.(3) After ingestion, the L3 molts in the abomasum. The L4 moves into the small intestine where it penetrates the intestinal wall, eventually emerging and developing to an adult. The prepatent period ranges from 15 to 26 days.(1) It does not appear that *Nematodirus* has an inhibited stage. Adult females produce small numbers of eggs on a daily basis, and the eggs are easily distinguished from other strongyle type eggs because of their large size.

Summary

*N. helvetianus* is the only species associated with obvious clinical disease and young animals are most susceptible to infection. *Nematodirus* is most pathogenic during the period prior to egg laying. If clinical signs do develop, they will do so approximately 14 days after exposure occurs. Direct penetration by the parasite causes intestinal inflammation with mucous characterized by erosions of the intestinal lining and inflammatory cells. Physical irritation of the intestinal tract itself is also contributory.
Clinical signs include diarrhea, anorexia, dehydration and a dull coat.(1)

Immunity to Nematodirus occurs rapidly, and animals older than 6 months usually have age-related resistance.(1) Nematodirus is not considered a disease of older cattle because of the immunity which calves have been shown to develop. The immune response is based on both exposure and age. Pasture contamination is considered the major source of infection in calves. Infected calves contaminate the pasture for calves grazing the following year. Older animals are not considered a major source of contamination.

Because of the hardiness of the parasite, a pasture may remain contaminated for up to two years.(1) Treatment and control of Nematodirus is similar to those practices established for other cattle nematodes. IVOMEC® EPRINEX® (eprinomectin) Pour-On for Beef and Dairy Cattle is highly effective against both L4 and adult stages of Nematodirus helvetianus. This product is well-suited to be the major component of a parasite control program for cattle because of its tremendous flexibility, combining broad-spectrum activity with a weatherproof formulation and zero milk withholding and zero meat withdrawal.

References:

